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TITLE:

PET REFUSE TOOL AND METHOD

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Reference to Prior Provisional Application

This application claims the benefit of prior copending provisional application number 60/396,447, filed July 17, 2002.

Background Of The Invention

This invention relates to a hand tool for picking up pet refuse and the like, and has particular reference to such a tool for placing and confining the refuse in a disposal bag as an incident to the picking-up operation. The invention is well suited for use by a person walking a pet on a leash and cleaning up after the pet, as is appropriate and sometimes required by law in public areas. The tool also is usable for removal of cat refuse from a litter tray, and other tasks of this kind.

Many types of tools and procedures have been proposed or provided for use in picking up and disposing of pet refuse and the like, while avoiding touching of the refuse by the user. One such tool is a combined scoop and pushing tool with which refuse is picked up and then simply dumped in a refuse container. A variation of this, sold as the "Pix It Up" system, uses a square frame on an elongated handle and attaches a bag to the frame to receive the refuse as it is scooped up in the frame. The bag is then detached from the scoop for disposal of the refuse.

Another product is the "Pet Gold Mini Scissors Scoop" sold by Petco and comprising a plastic scissors for slicing under the refuse and then picking it up for deposit in a bag for disposal. Still another is "Allen's Spring Action Scooper", also sold by Petco, having spring-loaded clamshell jaws for picking up and then depositing the refuse. Another widely used procedure is the use of a simple flexible plastic bag which the user places over the refuse and then closes and grips to contain the refuse in the bag. While simple and effective, this procedure often

involves difficult manipulation of the bag and unpleasant contact of the user's hand with the refuse.

Brief Summary of The Invention

The present invention resides in a simple and effective hand tool that receives and holds a flexible bag in which the refuse eventually will be discarded, and a novel method of its use, the tool being capable of relatively simple manipulation and being effective both to pick up the refuse and to enclose the refuse in the flexible bag in a quick and easy operation that avoids all contact between the user and the refuse. The method also provides for simple and effective closing and removal of the bag.

For these purposes, the invention provides a lightweight and compact tool with a handle to be held in one hand, a gripping head on the handle with a "receiving" opening between two relatively movable jaws, the opening being lined, for use, with a flexible bag that receives the refuse when the tool is placed over the refuse. The bag then is pulled into the tool from the handle side of the head to complete the pick-up of the refuse without need for contact with the user's hands. The preferred bag has an attachment on its closed end that serves first as a bag cartridge or carrier for insertion in the tool and, after the refuse has been pulled into the tool, as a closure clip for the bag. The closed and sealed bag then may be separated from the tool and discarded with the enclosed refuse. Conventional flexible plastic bags without the closure clip attachment may be used if the supply of the preferred bags has been exhausted.

Additional features of the invention include the provision of a convenient seat for a miniature flashlight in the tool, positioned to illuminate the area in front of and inside the gripping head, and a conveniently located operating lever on the tool for opening the receiving opening and releasing the jaws to spring-closing action, while also being positioned to serve as a belt clip for carrying the tool. A thumb hole in the end of the handle remote from the gripping head permits the user to carry the refuse tool in the same hand holding a conventional reel for a pet leash while walking the pet.

Other features and advantages of the invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings.

Brief Description of the Drawings

FIGURE 1 is a front and top perspective view of a pet refuse tool in accordance with the present invention, shown with a miniature flashlight in the flashlight seat;

FIG. 2 is a side elevational view of the refuse tool of FIG. 1;

FIG. 3 is a top plan view of the refuse tool;

FIG. 4 is a longitudinal cross-sectional view taken substantially along line 4-4 of FIG. 3;

FIG. 5 is a fragmentary side elevational view showing the tool clipped onto the belt (in cross-section) of a user;

FIG. 6 is a cross-sectional view of the tool, similar to FIG. 4, showing the carrying position of a user's hand, in broken lines, and a schematic fragmentary representation of a leash reel held in the user's hand, in outline only;

FIG. 7 is a top perspective view of a bag cartridge for use with the refuse tool of the invention, with a bag shown in folded condition for insertion in the refuse tool;

FIG. 8 is a front and side perspective view showing the refuse tool with the gripping head in the open position and a bag cartridge being inserted into a bag seat in the lower jaw of the head;

FIG. 9 is a top perspective view on a reduced scale showing the beginning of unfolding of the bag from the bag cartridge in the bag seat, by pulling the free open end portion of the bag out of the seat;

FIG. 10 is a side elevational view of the refuse tool and bag of FIG. 9, with the unfolded bag shown in cross-section and being opened preparatory to being folded over the tool;

FIG. 11 is a view similar to FIGS. 8 and 10 with the bag folded over the tool;

FIG. 12 is a view similar to FIGS. 8, 10 and 11 showing the user's hand in the step of forming a pocket by pushing the top wall of the bag into the mouth of the tool;

FIG. 13 is a view similar to FIG. 12 showing another step with the tool and bag in the open condition and held over a piece of pet refuse in position to grip and pick up the refuse;

FIG. 14 is a view similar to FIG. 13, on a slightly reduced scale, showing another step in the sequence after the position shown in FIG. 13, with the tool released and closed on the pet refuse and the user gripping the inner end of the bag, at the carrier, and beginning to pull the bag into and through the gripping head;

FIG. 15 is a view similar to FIG. 14 showing another step, after the bag has been pulled partially through the head and the user is moving the closure clip of the carrier into engagement with the open-end portion of the bag, to enclose the refuse;

FIG. 16 is a view similar to FIG. 15 showing another step in which the clip has been applied and the closed bag is held in the tool ready for disposal;

FIG. 17 is a fragmentary bottom plan view on an enlarged scale of the underside of the gripping head after removal of the bag;

FIG. 18 is a further enlarged fragmentary view taken substantially along line 18-18 of FIG. 2 of the underside of the movable jaw of the gripping head, showing the illumination lines of the flashlight;

FIG. 19A is a top perspective view of an alternative embodiment of the invention;

FIGS. 19B and 19C are fragmentary views showing modifications of the alternative embodiment in FIG. 19A;

FIG. 20 is a view similar to FIG. 13 showing the position of the tool of the alternative embodiment in picking up a piece of refuse and showing the actuation of the tool to push the refuse into a bag fitted into the receiving opening of the tool; and

FIG. 21 is a view similar to FIG. 20 showing the application of the alternative form of the closure clip to the bag.

Detailed Description

As shown in the drawings for purposes of illustration, the invention is embodied in a portable tool, indicated generally by the reference number 10 in the drawings, for use in picking up refuse such as pet feces or the like, represented generally herein simply as a lump 11 (see FIG. 13), for disposal of the refuse. For example, the tool may be carried by a user during the walking of a pet along a city street or in a park, for use in retrieving the pet's discharged bodily waste, as is always appropriate as a courtesy and sometimes is required by law, and carrying the waste to a suitable disposal point.

As has been noted, this function often is simply performed by carrying a flexible bag and fitting the bag around the refuse to pick it up, then folding the bag around the refuse and depositing it in a refuse container. Various tools have been devised to assist in this process, including those mentioned in the background section hereof, but those tools suffer from various shortcomings, primarily in convenience of operation and the aesthetics of handling the feces. The present invention is designed to reduce those shortcomings.

In accordance with the present invention, the tool 10 is a lightweight and compact implement that can be carried conveniently in one hand and that is easily combined with a flexible bag 12 (see FIGS. 7-13) in a novel manner that enables the user to pick up the refuse 11 in a simple operation, pull the refuse into the tool while enclosed in the bag, and close and seal the bag for disposal, all without contact by the user with the refuse or the portion of the bag containing the refuse. The result is a greatly simplified operation with a minimum of unpleasantness, even for the most sensitive of users.

For these purposes, the tool 10 comprises a handle 14 that can be sized to be gripped in one hand during use, herein being provided with transverse ridges 15 on its upper side for secure gripping. The tool has a gripping head 17 on one end of the handle with a "receiving" opening 18 formed between two relatively movable elements 19 and 20, in the nature of jaws on opposite sides of the opening 18, and the opening is lined, for use, with a flexible bag 12, preferably composed of thin-walled plastic film, with an open-end portion formed by two

opposed walls overlying the adjacent sides of the two jaws (see FIG. 13). When the jaws are spread apart to expand the receiving opening, the gripping head 17 is placed over the refuse, thereby placing the bag 12 over the refuse as well, so that closing of the jaws grips the refuse 11 in the receiving opening between opposed walls of the bag. The bag then is pulled farther into the tool to drag the refuse into and through the gripping head, where a closure clip 21 (FIG. 15) can be applied around the bag to seal the refuse in the bag before the bag is completely removed from the tool 10.

Another feature of the preferred embodiment of the invention shown in FIGS. 1 through 18 is the provision of an optional but highly desirable disposable bag cartridge 22 (see FIGS. 7 through 16) that contains a bag 12 in folded condition and is fitted into the gripping head 17 ready for opening and use on demand. This cartridge also provides a convenient grip for pulling the loaded bag through the gripping head and from the tool during use, and carries the closure clip 21 for sealing the loaded bag for disposal. It is to be noted that a conventional flexible-walled bag can be fitted in the tool and manipulated in a similar manner if a bag cartridge is not available. The invention will be described hereinafter using the bag cartridge, which is the preferred use of the invention.

As shown in FIGS. 1-4, the first embodiment of the tool 10 comprises an elongated handle 14 with a thumb hole 23 at one end and a downwardly offset portion 24 (see FIG. 2) at the other end, terminating in the jaw 19 and a free edge 25 that forms one side of the receiving opening 18. Overlying the lower jaw 19 is the upper jaw 20 which is movably mounted on the handle 14, herein on two laterally spaced L-shaped brackets 27 that project forwardly at the offset in the handle and support a hinge pin 28 for the movable jaw that is fastened at its ends to the movable jaw. The movable jaw has an integral operating lever 29 that extends over a clearance opening in the handle, and herein is formed with a series of ridges 30 for effective contact with a user's thumb (see FIG. 8).

While the movable jaw 20 may be mounted for manual movement in both directions about the pivot pin, it is preferred to provide for spring closing, and herein a torsion spring 31 (FIGS. 4 and 6) is coiled around the jaw hinge for this purpose, with its opposite ends engaging and stressed between a seat 32 on the handle 14 and the underside of the operating

lever 29. This urges the lever counterclockwise (as upwardly viewed in FIG. 4) about the hinge pin into a "closed" position shown in FIG. 4 in which the top wall of the movable jaw abuts against stops 33 on the upper ends of the L-shaped brackets. A surrounding flange or skirt 34 on the movable jaw has a lower edge 35 that preferably is slightly spaced from the opposed edge 37 of the lower jaw in the closed position, as shown. The bottom wall 38 (FIG. 4) of the lower jaw 19 is substantially flat between two upturned side flanges 39 to receive the bag cartridge 22, and has two inwardly projecting hold-down ears 40 that are spaced above the bottom wall. It can be seen in FIGS. 1, 3 and 11, and most clearly in FIG. 17, that this bottom wall is formed as a solid front edge portion 38^a at the receiving opening and two arcuate bands 38^b that curve rearwardly and outwardly to the side flanges 39, defining a generally V-shaped flaring notch 41 in the bottom wall, for a purpose to be described.

With the operating lever 29 normally held in a slightly upwardly inclined position above the handle 14, it forms a convenient clip for carrying the tool 10 on the belt 42 of a user, as shown in FIG. 5. This is an out-of-the-way but easily accessible position. When the user is carrying a leash reel, as indicated at 43 in FIG. 6, the tool 10 conveniently may be held with the user's thumb through the hole 23, as shown in FIG. 6.

Referring to the bag cartridge 22 shown most clearly in FIG. 7, it will be seen that a thin-walled preferably plastic bag 12 is folded into flat, square storage configuration and lies on top of a generally rectangular and flat carrier slide 44 for insertion into the gripping head of the tool 10, to hold a folded bag in readiness for opening and use. The illustrative carrier slide is in the form of a stiff plastic plate having upturned side edge portions 45 and two upwardly offset bag-retaining flaps 47 that are punched out of the plate and extend over and releasably hold the folded bag, as shown in FIG. 7. The preferred bag has a closed end that preferably is attached to the front edge portion 48 of the slide plate, as by heat sealing or an adhesive, and a pull tab 49 that is affixed to one side of the open end portion of the bag (see FIG. 9) and positioned on the front portion of the slide plate, when the bag is folded, to lie in the receiving opening 18 when the cartridge is in place in the tool 10 (see FIG. 8).

As shown most clearly in FIGS. 8, 9 and 17, the bag cartridge 22 slides into the gripping head 17 above the bottom wall 38 of the lower jaw 19 and beneath the two ears 40, preferably with the upturned edges 45 and the flaps 47 engaging the undersides of the hold-down ears 40 for resistance to sliding. The bag cartridge is held releasably in place in the gripping head by yieldable detents, herein two depending, resiliently flexible tabs 48 on the underside of the slide plate (see FIGS. 15 to 17) that snap into the recesses 49 in the bottom wall when the cartridge is in place, as shown in FIG. 17, thus preventing forward sliding of the slide plate. A depending resiliently flexible positioning flap 50 (FIGS. 7 and 15) on the front edge of the slide plate engages the front edge of the bottom jaw 19, herein in an arcuate recess 51 therein, and releasably detains the cartridge against further movement into the gripping head. Thus, the cartridge is latched releasably in place by the tabs 48 and the flap 50, which form opposed detents abutting against opposed surfaces of the lower jaw.

FIGURE 9 shows the extendability of the folded bag 12 from the cartridge 22 preparatory to use, and generally illustrates a preferred length of the bag, substantially longer than the length of the tool 10. The width of the open bag preferably is at least three times the width of the tool, and herein is at least four times, the extended bag shown in FIG. 9 being folded into a one-quarter width strip (and was folded endwise from the condition in FIG. 9 into the storage condition in FIGS. 7 and 8).

After being extended for use as shown in FIG. 9, the bag 12 can be opened into the condition shown in FIG. 10 and then folded back over the tool 10 as shown in FIGS. 11-13 preparatory for use. Preferably, one wall of the bag is pushed into the receiving opening as shown in FIG. 12 while the jaws are held open by the user's thumb on the operating lever, to form a receiving pocket 52 in the receiving opening, as shown in FIGS. 12 and 13. Then the tool is placed over the refuse 11, as shown in FIG. 13, which is resting on the ground, grass or other surface indicated at S, and the operating lever is released to permit the jaws 19 and 20 to close under the action of the spring 32. This brings the jaws together around the piece of refuse to grip the refuse between the jaws.

It will be seen that the slight spacing of the jaws 19 and 20 in the closed position is less than the usual thickness of the piece of refuse 11, so that the refuse will be gripped, but preferably

not smashed, between the jaws. Two generally semi-circular recesses 51 and 53 are formed in the central portion of the jaws, in the edges forming the receiving opening, to enhance this gentle gripping action. This permits the open-end portion of the bag and the contained refuse 11 to be pulled into, and eventually through, the tool 10 for closing and removal. An incidental benefit of these recesses and the slight spacing of the closed jaws is that cat feces can be picked up in a litter box and held while the cat litter, or sand, is shaken out of the bag and back into the box.

From the pick-up position in FIG. 13, after the refuse is clamped between the jaws, the user grips the rear end of the carrier slide 44, as shown in FIG. 14, and pulls the slide rearwardly out of the gripping head 17, thus pulling the open-end portion of the extended bag 12 into and through the head 17 and drawing the contained refuse 11 through the head, as indicated in broken lines in FIG. 15. As shown in FIG. 15, the bag is held releasably in the flaring V-shaped notch defined in the fixed jaw 19 by the arcuate bands 38^b. At this stage, the bag and refuse can be simply separated from the tool and discarded, if desired, but the invention provides for convenient closing and sealing of the bag before separation from the tool.

This is accomplished, as shown in FIGS. 15 and 16, by inverting the carrier slide 44 to direct the closure clip/notch 54 (FIGS. 15-17) formed in the inner or rear edge of the carrier slide toward the bag while the open end portion still is held between the jaws 19 and 20, and forcing the clip over the bag (or the bag into the notch in the clip). The notch has converging side edges leading to a narrow throat, with an enlarged inner opening for receiving and holding the bag. The bag thus is closed by the clip, beyond the contained refuse 11, and is effectively sealed. The open end portion of the bag, beyond the clip, never is in contact with the refuse and therefore cannot be contaminated by the refuse. In this position (FIG. 16), the bag 12 can be carried by the tool 10 to a refuse container, or separated and carried by the carrier clip 44 or by the open-end portion of the bag beyond the clip.

Another feature of the invention is the provision of a selectively operable miniature flashlight 55 that can be used to illuminate the ground while picking up refuse, and also to

generally illuminate the gripping head 17 during the bagging operation. For this purpose, a seat 57 (FIGS. 1 and 3) is formed in the upper jaw 20 of the gripping head to receive a flashlight with a "snap", interference fit beneath a resiliently flexible retaining lip 58 surrounding the top opening in the upper jaw. The front wall of the seat is open to expose the lamp 59 of the flashlight and permit projection of a beam through the upper semi-circular opening 53, and webs 60 (FIG. 18) of translucent material preferably are disposed within the path of this beam to diffuse the beam and illuminate the gripping head as well as the surface area in front of the head. An "on-off" 61 switch is provided on top of the flashlight for easy access.

While the parts of the tool may be made of various materials, including rubber and a variety of different plastics, the preferred embodiment uses relatively rigid molded plastic for the handle 14, the integral jaw 19, and the movable jaw 20, the latter preferably being translucent plastic for light diffusion. Stiff but resiliently flexible sheet plastic is used for the carrier slide 44, with integral flexible detents 48 and bag-retaining flaps 47. The tab 49 may be composed of plastic, cardboard or other lightweight material, and the bags 12 preferably are very thin-walled plastic film. The elongated oval openings in the upper jaw 20 of the gripping head 17 are simply for material and weight reduction and visibility of the interior.

Shown in Figures 19 through 21 is a refuse tool 70 constituting an alternative embodiment of the invention in which a receiving opening 71 is defined between a fixed lower jaw in the form two depending L-shaped members 72 spaced apart to leave a slot 73 between them, and a movable jaw 74 that is hinged on the tool and extends outwardly in front of the L-shaped members. The movable jaw, resembling a set of depending fingers, forms a pusher for moving an article of pet refuse 75 into the opening 71 between the jaws and into the L-shaped members, while a disposable bag 77 (FIGS. 20 and 21) is positioned to line the opening and receive the pet refuse, as in the first embodiment. The slot 73 provides a convenient entry and exit for the open-end portion of a disposable bag 75, which in this instance need not be folded.

This tool 70 also has an elongated handle 78 with a gripping head 79 on one end, formed by the pushing jaw 74 and the L-shaped members 72, with a manually operable trigger 80 for the

pushing jaw, a simple jaw hinge pin 81 in FIG. 19A, and with a return spring 82 coiled around the hinge pin 81 in FIG. 19B, which is a modified form 70^a of the tool 70 in FIG. 19A. This spring holds the movable jaw yieldably in the "open" position. In FIG. 19C, an integral plastic hinge 82 is formed for the jaw 74, this being another modification of the tool, indicated as 70^b.

FIGURE 20 shows a flexible bag 77 in place in the receiving opening and folded over the tool 70, with a closed end of the bag under the handle 78 and carrying a closure clip 83 that has a notch 84 for slipping over the bag 77 to close and seal it. As in the first embodiment, the refuse first is positioned in the receiving opening 71 by placing the tool over the refuse, on the ground or other surfaces, but this embodiment uses the trigger 80 and the movable jaw 74 to push the refuse into the bag and hold it in place. Then the bag is pulled partially through the members 72, as indicated by the arrow 87 in FIG. 20, and the closure clip 84 is fastened around the open-end portion of the bag as shown in FIG. 21. Then the bag can be pulled out, using the slot 73 if desired, for disposal.

Accordingly, it will be seen that the present invention provides a simple and effective pet refuse tool that is easy to use and enables the user to pick up, bag, and dispose of pet refuse without need for touching of the refuse or the portion of the bag containing the refuse. This tool can be manufactured in a form that is lightweight and durable, and equipped with disposable refuse bags in cartridge form for even greater convenience.

It also will be evident that, although various embodiments of the invention have been illustrated and described, other modifications and changes may be made by those skilled in the art within the spirit and scope of the invention.